

PATENT SPECIFICATION

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COMPLETE SPECIFICATION

DRAWINGS ATTACHED

Lined Dispensing Package for Fluent Substances

We, IVERS-LEE COMPANY, a corporation organized and existing under the laws of the State of Delaware, United States of America, located at 215 Central Avenue, Newark 3, State of New Jersey, United States of America, do hereby declare the invention for which we pray that a patent may be granted to us and the method by which it is to be performed to be particularly described in and by the following statement:—

This invention relates in general to packages or containers for dispensing fluent substances such as liquids, for example, cod liver oil, nose drops, eye drops, iodine, or the like, or paste or powder, and more particularly, the invention contemplates a package of the type comprising at least two flexible layers or sheets of packaging material that are preformed or molded to provide recesses and two of such sheets are sealed together in zones bounding said recesses so that the recessed portions complement each other in forming a compartment for the fluent substances.

A primary object of the invention is to provide packages of this type so that the portions of the walls of the compartment that contact with the fluent substance in the compartment shall be non-pervious and inert to the fluent substance to prevent evaporation of the substance and influx of extraneous foreign material into the compartment and also avoid contamination of the packaged fluent substance by the packaging material.

Another object of the invention is to provide a package of this type which shall embody an improved construction and combination of layers of material that can be heat sealed together for forming the compartment, and a lining layer or film on the portions of the layers that form the walls

of the compartment.

Still another object of the invention is to provide such a package wherein the package shall comprise two complementary sections and be formed of one or more layers and the layers of packaging material shall be substantially self-sustaining but at the same time resilient to hold the walls of the compartment in normal spaced relation to each other and yet permit such walls to be squeezed, for example, between the thumb and index finger of a user, so as to squeeze the fluent substance from the compartment when portions of the walls of the compartment have been torn or severed to provide a discharge orifice.

Other objects of the invention are to provide a package of the character described the main portion of the layers of which shall be relatively inexpensive and heat sealable and the boundaries of the recesses in the layers that form the compartment shall be disposed inwardly from the edges of the layers of packaging material with the lining or coating film on the compartment walls but with its margin extending slightly beyond the boundaries of the recesses so that the margins of the linings of the two recesses are pressed or sealed together to prevent the fluent substance from entering between the heat sealable portions of the layers.

Other objects, advantages and results of the invention will be brought out by the following description in conjunction with the accompanying drawings in which

Figure 1 is a plan view of a package embodying the invention;

Figure 2 is a greatly enlarged sectional view approximately on the plane of the line 2-2 of Figure 1;

Figure 3 is a similar view on the plane of the line 3-3 of Figure 1;

Figure 4 is a longitudinal sectional view

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approximately on the plane of the line 4-4 of Figure 1; and

Figure 5 is a vertical sectional view through the joints between the two sections 5 of the package approximately on the plane of the line 5-5 of Figure 2.

Specifically describing the invention, the package is shown as comprising two identical walls or sections A and B each of which 10 comprises at least one layer of heat-sealable material but, preferably, as shown, comprises an outside layer 1 of, for example, cellulose acetate, for strength, an inside layer 2 of a heat-sealable substance, for 15 example, a vinyl compound of polyethylene that preferably are laminated together. The materials have a limited ability to stretch under pressure molding and each section is preformed, for example, by pressure molding, 20 to provide a recess 3 in one side thereof whose boundaries are spaced from the margins of the layers 1 and 2 as indicated at 4 and which are of the desired shape, in the present instance, approximately rectangular in plan and having at one end the res- 25 pective extension recesses 5 whose boundaries are also spaced on the edges of the layers 1 and 2; and in the present case, the edges of the layers 30 or package sections have extensions 6 between which and the recesses 3 are notches 7 disposed between the corresponding recesses 3 and the ends of the corresponding extension recesses 5. The 35 concave or inner surface of each recess 3 or extension recess 5 has a layer, coating or film 8 of a non-pervious substance such as silicone. The margins of said layers of non-pervious material extend outwardly from 40 the boundaries of the recesses but extend inwardly from the edges of the layers or sections as indicated at 9.

The two walls or sections are heat sealed together in any suitable manner; for 45 example, between heated dies, which seal the heat-sealable layers together in zones 10 bounding the recesses so as to provide a compartment C. Initially only the portions of the sections bounding the recesses 3 will 50 be sealed together so as to leave the remaining portions of the layers bounding the extension recesses 5 unsealed to provide a filling opening for the insertion of a nozzle or the like into the compartment to fill the 55 compartment with the desired fluent substance D; and after the filling operation said unsealed portions are heat sealed together to close the filling opening and complete the package, the extension recesses 5 forming a 60 restricted discharge neck for the compartment.

An important feature of the invention is that the marginal portions 9 of the lining layer, film or coating extend into the cavity 65 11a formed by the walls A and B as they

diverge to form the compartment C and the lining of each recess is squeezed or pressed along its marginal portions during the sealing operation as indicated at 11 so as to close the sealed joint between the two sections A 70 and B against the entry of the fluent substance D into the sealed zone. In this way, contact between the fluent substance and the layers 1 and 2 of the packaging material is prevented; evaporation of the fluent sub- 75 stance through the walls of the compartment is prevented or reduced, and influx of foreign or extraneous material through the compartment walls into the fluent substance is prevented. 80

When it is desired to remove the fluent substance, the extensions 6 are torn along the notches 7 transversely of the extension recesses 5 so as to provide a discharge orifice at the outer ends of said extensions and then 85 the walls of the compartment may be squeezed so as to force the substance out of the compartment through said discharge orifice. When the package is held with the orifice facing downwardly, the fluent sub- 90 stance will flow only under such pressure of the walls of the compartment so that it is possible to control the discharge of the fluent substance to permit the substance to be dispensed in drops if desired. 95

The invention permits the production of a package whose main portion, that is, the layers 1 and 2, may be formed of relatively inexpensive material which usually is porous and likely to contaminate the substance 100 packaged therein, but the walls of the compartment of which are non-pervious and inert to the packaged substance. The coating material using in the lining may be relatively expensive and generally non-heat sealable 105 but the walls of the compartment may be lined with a minimum of material and expense and the outer sustaining wall portions of the package can be formed of strong, relatively inexpensive and heat-sealable material. 110

WHAT WE CLAIM IS:—

1. A package for a fluent substance each wall of which comprises at least two layers of flexible sheet material, the said walls being heat sealed together in zones forming and 115 bounding a compartment between them for the fluent substance, at least the abutting surfaces of the layers being heat sealable, the inner surfaces of the portions of the layers that form the walls of the compart- 120 ment being coated with a material non-pervious, and inert to the fluent substance, the coating extending to contact the inner edge of the sealed zone between the layers and into the cavity, formed by the walls as they diverge to form the compartment, so 125 as to close the end of the sealed joint between the layers.

2. A package as defined in claim 1, which comprises two identical sections each 130

of which is formed to provide a recess opening at its one side complementary to the recess of the other section when the two sections abut the inner surfaces of said recesses having thereon the coating and the sections being heat sealed together in zones bounding said recesses.

3. A package as in claim 1 or 2, wherein the coating is of a film of silicone.

4. A package as in any of claims 1 to 3, 10 wherein the coated layer is of cellulose acetate.

5. A package for a fluent substance substantially as described with reference to the accompanying drawings.

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